

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2011 – 12)

SUBJECT CODE: 11BI/PE/CG14

M. Sc. DEGREE EXAMINATION, NOVEMBER 2011
BIOINFORMATICS
FIRST SEMESTER

COURSE : ELECTIVE

PAPER : CELL BIOLOGY & GENETICS

TIME : 3 HOURS

MAX. MARKS: 100

SECTION – A

ANSWER ALL QUESTIONS

20 X 1 = 20

I. CHOOSE THE CORRECT ANSWER.

- Which one of the following is not true about Fimbriae
 - They are composed of Protein
 - They may be used for attachment
 - They are found on gram negative bacteria
 - They may be used for mobility
- A virus with RNA dependent RNA polymerase synthesizes
 - DNA from an RNA template
 - Ds RNA from DNA template
 - Ds RNA from RNA template
 - M-RNA from DNA.
- Which one of the following would not be found in a Prokaryotic cell
 - Ribosome
 - cell membrane
 - Nucleus
 - DNA
- One of the following is not the four functional regions of cisterna stack
 - Cis – golgi network
 - Medial golgi network
 - trans – golgi network
 - Vesicular golgi network
- One of the following alone is the function of RER
 - Detoxification of drugs
 - anchorage of protein
 - Processing of sugars
 - Synthesis of lipids

II. FILL IN THE BLANKS

- The bacterial cell wall consists of peptidoglycon a polymer consisting of _____ & _____.
- Microtubules that attach to the kinetochore are known as _____.
- Golgi bodies are composed of stacks of membrane bound structures called _____.
- The points where two chromatids touch is called _____.
- Telomere is a repeating DNA _____ located at the end of the chromosome and _____ is an enzyme which adds these sequences.
- The network like structure of DNA is called _____.

III. STATE WHETHER TRUE OR FALSE

- The assembly of central element of synaptonemal complex happens in the Leptotene stage.
- Klinefelter syndrome is the most common sex chromosome disorder in males.

14. Recombinations in chromosomes are the cause and crossovers are the result.
15. The phenotype blood typing can receive blood from type 'O' grouping, but cannot donate blood to type 'O'.
16. Light harvesting complex is an array of protein & chlorophyll molecules embedded in the matrix.

IV. DEFINE IN A SENTENCE

17. Barr body
18. Viroids
19. Rh factor
20. Karyotyping

SECTION – B

ANSWER ANY FOUR QUESTIONS. EACH ANSWER SHOULD NOT EXCEED 500 WORDS.

4 X 10 = 40

21. Trace the prokaryotic structural and organizational features of a bacterial cell, compare it with an Eukaryotic cell.
22. Explain the fluid mosaic model.
23. Compare and contrast structure and functions of microbodies.
24. Correlate the molecular structure of mitochondria and its functions.
25. Define sex – linked inheritance, explain briefly with an example.
26. List the various changes occurring in a cell undergoing mitotic division.
27. Draw and describe nuclear envelope and pore complex.

SECTION – C

ANSWER ANY TWO QUESTIONS. EACH ANSWER SHOULD NOT EXCEED 1200 WORDS.

2 X 20 = 40

28. Describe the different levels of the structure of DNA in the cell.
29. Describe the structure of viruses infecting bacteria, also trace their infective cycles, add a note on prions.
30. Write an essay on Ribosomes – their structure and role in protein synthesis.
31. Write an essay on structure and role of microtubules & microfilament in cells.
